DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 70.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-003586
Date Inspected: 21-Aug-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Japan Steel Works

OSM Arrival Time: 800
OSM Departure Time: 1630
Location: Muroran, Japan

CWI Name: Chung Fu-Kuan

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower, Deviation and Jacking Saddles

Summary of Items Observed:

On this date OSM Quality Assurance (QA) Representative Daniel L. Reyes was present during the welding of the structural steel components for the West Deviation and the Tower Saddles relative to this project. The following was observed:

Foundry Shop, QA Ultrasonic Testing Verification

The QA inspector performed ultrasonic testing of the casting identified as W2-E1. The testing was performed on the exterior side of the casting on the unstamped side from the top to the stem and between rib 1 and 3. The casting was scanned utilizing a GE Inspection Technologies Model USN 60. The straight beam scan on all surfaces was performed using a 1.0" round 2.25 MHz transducer calibrated on 6.4mm diameter flat bottom holes in thicknesses from 45mm to 520mm. These locations were scanned using a 2.5MHz 0.5 inch round transducer on a 45 degree angle shoe calibrated on calibration block marked BJ6-3402, 200mm thick with 7.9mm side drilled holes at ¼ T and ½ T for shear wave examination. The testing was performed in accordance with the Japan Steel Works, Ltd. (JSW) procedure identified as SJ-2878 Revision 2.

The QA inspector performed 10% of the 100% tested by Nikki Inspection Service (NIS) NDT to verify that the testing and evaluation comply with the contract documents. An Ultrasonic Inspection report, TL-6025 was generated on this date.

Fabrication Shop # 4

Later in the shift at approximately 1030 hours, the QA inspector traveled to the Fabrication Shop # 4 to observe the shop welding, weld inspection and verification of the welding parameters on the structural steel plate components for the West Deviation Saddle identified as W2E2. The Welding was performed by the JSW welding

personnel Takao Kawakami ID 08-5079 and Masatugu Kabayashi ID 08-5154 utilizing the Welding Procedure Specification (WPS) SJ-3011-3. The Distortion Control Plan, identified as Document SJ-3109 Revision 3 was also utilized by the Japan Steel Works, Ltd. (JSW) personnel during the production welding of the rib plate to base plate connections identified as EY2-13V and E2Y-14V. The WPS and the Distortion Control Plan were also used as a reference during QC verification of the welding parameters and the monitoring of the weld sequence. The production welding sequence was performed as per Attachment 5, Case 2 Step 3 and Attachment 6, Step 5 of the Distortion Control Plan. The welding was performed in the Flat (1G) Position with the work in the horizontal plane and the weld metal deposited from above.

The consumable utilized by the welding personnel appeared to be a Hobart Brothers Product and the trade name was identified as TM 95K2 which appeared to comply with the AWS Specification A5.29 and the AWS Classification E90T5-K2C H4. The size of the electrode was 1.6 mm in diameter.

The QA inspector observed the removal of four (4) cracked tack welds on the T1-1 Tower Saddle located at the rib to stem plate connection identified as 7Y-7V (1-3) and 7Y-7V (1-2). The removal of the tack welds was performed by JSW welding personnel Mamoru Kubota ID 74-3666 utilizing the manual air carbon arc cutting process and the cut surface was finished by grinding to a bright metal. At the conclusion of the removal of the cracked tacks Nikki Inspection Service (NIS) QC/NDT personnel, Kazuya Kobayashi performed a Magnetic Particle Test (MPT) of the areas utilizing an AC Yoke, Type A-6 testing unit which appeared to be manufactured by Eishin Kagaku Co., Ltd. The MPT was performed on 100% of the repaired areas and was conducted utilizing the MPT procedure identified as SF-MT-01.
There were no relevant indications noted by the QC/NDT technician.
At the conclusion of the testing the welders Mamoru Kubota ID 74-3666 and Tatsuya Naitoh ID 71-2736 performed the tack welding utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as SJ-3012-2. The QC inspector monitored the welding and verified the welding parameters which appeared to comply with the contract documents.

The Quality Control (QC) inspection was performed by Intertek Testing Services (ITS) personnel Chung Fu-Kuan who performed the verification the preheat temperatures, welding parameters and the in process weld inspection during this shift. The welding parameters were verified utilizing a Hioki 3109 Clamp Meter, Model RMS and the surfaces temperatures were verified utilizing an Anritsu HA 100E digital surface thermometer during the QC verification. The calibration dates of the measuring instruments utilized by the QC inspector were previously verified by this QA inspector.

Later in the shift this QA inspector observed, at random intervals, the QC inspector performing QC verification of the welding parameters, the minimum preheat and maximum interpass temperatures.

The QA inspector’s observations were performed at random intervals during the shift. The QA inspector noted that it appeared the approved and latest revised WPS’s were posted at the welding station and that each approved welder was entered in the latest revised Welding Personnel Log issued by Japan Steel Works, Ltd. The welding parameters, preheat and interpass temperatures were verified by the QA inspector utilizing a Fluke 337 clamp meter for the electrical welding parameters and Tempilstik temperature indicators for the surface temperatures. The filler metal utilized by the JSW welding personnel was also verified. The QC inspector ITS personnel, Chung Fu-Kuan appeared to perform the visual weld examinations, monitoring of the welding and the verification of the

welding parameters in accordance with the contract documents.

On this page of this report, see Weld Joints in Progress Inspected regarding the QA observations of the production welding parameters recorded and the digital photographs which illustrates the observations of the activities performed on this date.

Item	Weld Identification	Applicable WPS	CWI Name	Amperage	Voltage	TravelSpeed	Preheat Temp	Remarks
1	E2Y-14V	SJ-3011-3	C. Fu-Kuan	345 DC	26 DC	295 mm/m	200 Degrees C.	M. Kobayashi
2	E2Y-13V	SJ-3011-3	C. Fu-Kuan	340 DC	25 DC	292 mm/m	200 Degrees C.	Kawakami

Summary of Conversations:

There were no pertinent conversations relative to the project on this date.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Venkatesh Iyer, (858) 967-6363, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer